ICR2

The Complete Reference Book

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Chapter 1 Introduction

This book is a guide to the ICR2/Cart Racing Simulator and presents all the information I have learnt on it over the years. Of course that a lot of the information was not figured out by myself alone, but by several dedicated and skilled members of the ICR2 community. But, the information here is not copy and paste of tutorials and information on game files but a compilation of the acquired knowledge written in my own words. In some cases I describe a different method to do things in each area so it is a good idea that you read the other excellent tutorials available out there. A list of ICR2 old and new sites is given at the Appendix section for extra reference and crediting to the ICR2 community.

In the following pages the reader will not only find information on how to install, configure and play this still much-beloved-by-many racing simulator, but also how to create, convert and edit new tracks and cars compatible with the game. Note that whilst great effort has been done to compile as much accurate information as possible a lot of educated guessing was made on some parameters and how they affect game behaviour based on the current knowledge the community have on the ICR2 files. The reason is because I have no information on the game application itself and this book will not tell how to modify it in any way. This is due to the fact that I don't know how to do it and it is not legal to modify copyrighted program without permission. Besides modifying it could cause difference in player's performance and consequently problems to off-line leagues.

Despite the ICR2 community is quite small nowadays there is still some people left keeping the lights on with new add-ons still been produced. ICR2 was a important mark in the history of sim-racing, as Indy 500 had been back in 1989, to deserve this book and I hope you all enjoy it and that will serve as a good reference to the remaining heroes of the community to keep it alive for some extra while.

All the Best,

RemingTon Fastwalker

Chapter 2 **Installation**

This chapter presents information on the different ICR2 versions and a guide on how to install each version and their respective patches.

2.1 ICR2 versions

Table 1 presents a list of the several ICR2 versions released and their respective patches.

Versions	Year	Patches	Comments
IndyCar II – DOS version 1.0.0	1995	Patch 1.0.1 Patch 1.0.2	Original DOS version
IndyCar II – DOS version 1.0.1	1995	Patch 1.0.2	Re-release. Also available via patch.
IndyCar II – DOS version 1.0.2	1996	Windy patch 1.0.0	Available via patch.
IndyCar II – DOS Rendition version 1.0.2	1996	None	Re-release of the game for the graphic cards with Rendition chip set.
IndyCar II – Windy version 1.0.0	1996	Win95 Patch 1.0.1	Re-release. Also available via patch.
IndyCar II – Windy version 1.0.1	1996	None	Version 1.0.1 of Windy is newer version than DOS 1.0.2 according to the patch readme files. After applying the patch Windows patch over DOS version 1.0.2 Windy 'about message' will report version 1.0.1.
IndyCar II – Mac OS version 1.0.0	1995	indycar2_patch.hqx	Original Mac OS version
Cart Racing – DOS version 1.0.0	1997	None	Re-release of the DOS version after the split of IndyCar into IRL and CART. Unfortunately the ICR2 version patches do not quite fully work on the CART Racing version.

Versions	Year	Patches	Comments
Cart Racing – DOS Rendition version 1.0.2	1997	None	Re-release of the game for the graphic cards with Rendition chipset.
Cart Racing – Windy version 1.0.1	1997	None	Version 1.0.1 of Windy seems to be the same version as DOS 1.0.2.

Table 1: List of ICR2 versions

Table 2 presents a list of patches and their contents.

Patch	Game Version	Size / Release Date	URL	Fixes
icr100_2.exe	ICR2 DOS 1.0.0 full hard drive installation only. Upgrades ICR2 DOS version 1.0.0 of the game to version 1.0.2. It will only work with the full hard drive installation of version 1.0.0. It does not work with CART Racing version.	1.23M / 1996-07-17	ftp://ftp.sierra.com/pub/sierra/patches/sports-sim/icr100_2.exe	• yellow flag problem with race order being corrupted • under-steering problem after driving a long time.
icr101_2.exe	ICR2 DOS 1.0.1 full hard drive installation only. Upgrades ICR2 DOS version 1.0.1 of the game to version 1.0.2. It will only work with the full hard drive installation of version 1.0.1. It does not work with CART Racing version.	216k / 1996-07-17	ftp://ftp.sierra.com/pub/sierra/patches/sports-sim/icr101_2.exe	• Mouse being automatically select for controls • yellow flag problem with race order being corrupted • under-steering problem after driving a long time.
icr2rend.exe	ICR2 DOS 1.0.2 full hard drive installation only. Upgrades DOS version 1.0.2 of the game to DOS 1.02 rendition version. It does not work with CART Racing version.	596k / 1997-02-20	ftp://ftp.sierra.com/pub/patches/pc/icr2rend.exe	• Upgrades DOS version to DOS rendition version.
icr2win.exe	ICR2 DOS 1.0.2 full hard drive installation only. Upgrades DOS version 1.0.2 of the game to Windows version (Windy) 1.0.1. Note that if you have DOS versions 1.0.0 or 1.0.1 you need to upgrade to DOS 1.0.2 first. It does not work with CART Racing version.	4.43M / 1996-09-09	ftp://ftp.sierra.com/pub/sierra/patches/sports-sim/icr2win.exe	• Upgrades DOS version 1.0.2 to Windows 9x version 1.0.1. Version 1.0.1 of Windy is newer version than DOS 1.0.2 according to the patch readme files.

Patch	Game Version	Size / Release Date	URL	Fixes
w95icr11.exe	ICR2 Windows (Windy) 1.0.0 full hard drive installation only. Upgrades Windows version (Windy) 1.0.0 of the game to Windy 1.0.1. It does not work with CART Racing version.	218k / 1996-09-27	ftp://ftp.sierra.com/pub/sierra/patches/sports-sim/w95icr11.exe	● problem of sound in the introduction starting before the video does ● Corrects realism settings in 2-player mode. Fixes statistical issues.
indycar2_patch.hqx	ICR2 Mac OS version 1.0.0 full hard drive installation only.	374k / 1996-10-21	ftp://ftp.sierra.com/pub/macintosh_patches/indycar2_patches.hqx	● Adds support for Mac Thrustmaster T2 pedals. ● Game will now automatically unlock the modem configuration file. ● Fixes crashes during multiplayer racing. ● Allows Mac version of game to sponsor multiplayer matches which include users of the Windows/DOS versions of the game.

Table 2: List of ICR2 patches

2.2 DOS installation

Only the DOS versions of ICR2 can run on MS-DOS.

2.2.1 Installation of DOS version 1.0.0 or 1.0.1

The installation of the DOS version does not offer difficulty simply follow the instruction presented by the game's installation tool named *INSTALL.EXE*. After the initial installation run the *SETUP.EXE* to configure your sound board.

> **Note:**
>
> If instead of using the game *INSTALL.EXE* application you decide to copy the INDYCAR2 folder manually to your directory you will end up with all game files marked as read-only. This will cause error when the game try to write to those files These are files like .cfg, .stg. and .txt In order to avoid problems is recommended to use the *INSTALL.EXE.*

2.2.2 Patching to DOS version 1.0.2

If you wish to patch the game for the latest does version place the *icr100_2.exe* in the game main directory and execute it. The path will extract the necessary files for patching the game to the main game directory. Then run the *PATCHICR.BAT* file to apply the patch.

> **Note:**
>
> Do not run the *PATH.EXE* directly since it will not fully work!

> **Note:**
>
> The ICR*.EXE patches have been designed for ICR2 and not for Cart Racing. If you try to apply the patch some files may be updated, but not the main game application.

2.2.3 Patching to DOS rendition version 1.0.2

First upgrade the DOS version to 1.02 as described above and then apply the *ICR2REND.EXE* from the game main directory.

2.3 *Windows 95, 98, Me installation*

Both the DOS, DOS rendition and Windy can be run on Win9x series.

2.3.1 Installation of DOS version 1.0.0 or 1.0.1

First install the DOS version and patches as described in chapter 2.2.

If you are running Win95/98 you may wish to restart the PC in real DOS mode to run ICR2. You may get no problems with sound in that case if you have a compatible sound card. However, you may not be able to set an controller different then the one connected to your sound card standard game port.

In WinMe double click on the INDYCAR/CART.EXE. Windows will display a message saying that it is only possible to execute the program in Virtual DOS mode. Right click on the INDYCAR/ CART.exe and select properties then OK. WinMe will create a DOS short cut in the game main directory. Right click on the just created INDYCAR/CART DOS short cut, click on the program tab and add the -H option to the command line. Then you can run the game by double clicking the DOS short cut. The game will work fine in this mode but without sound. If you wish to continue running the DOS version you should try VDMS sound as described in chapter 2.4. Otherwise the best approach is to upgrade the game to windows version 1.0.1 as described in chapter 2.2. I however could note execute the VDMS sound in Win Me.

> **Note:**
>
> Since WinMe does not support DOS real mode it may crash if you attempt to run a DOS application directly instead of creating a DOS virtual mode short cut. My Win Me crashes if I attempt to run DOS shell, the SETUP.EXE or the UVCONFIG application directly when I have an USB device like a pen driver or controller connected to my PC. If you are having trouble installing ICR2 on your PC you may try to unplug any USB device first. Nevertheless, once I have my INDYCAR DOS virtual mode short cut I can use my USB wheel with the game without problems.

2.3.2 Installation of Windows version 1.0.0 (Windy)

The installation of the Windows version does not offer difficulty simply follow the instruction presented by the game's installation tool. Note that in some cases the DOS and rendition version also comes in the same CD and is automatically installed in to your hard disk on DOS sub-folder in the game directory. You may wish to manually remove such directory to save hard disk space or keep it for testing whether the tracks and car sets you create are compatible with those versions.

2.3.3 Patching of DOS version 1.0.0 or 1.0.1 to latest DOS version

See chapter 2.2.

2.3.4 Patching DOS version 1.0.2 to Windows version 1.0.1

Only version 1.0.2 can be upgrade to Windows version so be sure that you have first upgrade the DOS version to 1.02. Place ICR2 folder into a new folder (e.g. GAMES). Place the *ICR2WIN.EXE* into the GAMES folder and run it.*ICR2WIN.EXE* will unpack several files into its current directory. Then run the *INSTALL.BAT* and after the *SETUP.EXE*.

2.3.5 Patching Windows version 1.0.0 to 1.0.1

Place the *W95ICR11.EXE* into your ICR2 folder and run it. *W95ICR11.EXE* will unpack several files into the ICR2 directory. Run the *PATCH.EXE* to updated the game.

2.4 Windows XP installation

Both the DOS, DOS rendition and Windows versions of ICR2 can be run on Windows XP.

2.4.1 Installation of DOS version

First install the DOS version and patches as described in chapter 2.2.

Sin Windows XP does not support DOS you will have to use the DOS4GW application to run ICR2 in Windows XP. You must run the application via a .bat file otherwise the game may crash your computer.

1. Get a copy of DOS4GW. I used version 1.97 that came in my CART CD inside the DOS rendition folder.

2. You will need to use the VDMS launcher application, icr2star by Woof_GM (http://www.cartracinghq.com/forum/showthread.php?tid=37) can be used in order to run the DOS version of ICR2 and other DOS games on XP with sound.

3. After you unpack the icr2starfile, run the VDMS setup and restart your computer

4. Place the provided SOUND.CFG and the ICR2.bat into your ICR2 main folder.

5. Run the ICR2.bat by right clicking on it and selecting run with VDMS.

6. And that's it. I have tested it in my notebook with XP and work very well with sound and controllers using the default VDMS configuration. The SOUND.CFG configuration uses Soundblaster 16bit stereo and IRQ=7. If that don't work with you you may have to use another VDMS configuration like select another IRQ for your sound card. Also if you have problems with ICR2 SETUP.EXE not detecting your sound car you may try to edit the SOUND.CFG provided with icr2star using an HEX editor. Look for the byte offset 04 which should have value 07 and change it for the IRQ value of your sound card. My desktop used IRQ=5 and my notebook IRQ=7.

An updated explanation of installation can be found on a post from Woof_GM at the Cart Racing Head Quarters (http://www.cartracinghq.com/forum/showthread.php?tid=37).

Note:

Since WinXP does not support DOS real mode it may crash if you attempt to run a DOS application directly instead of using DOS4GW and the bat file provided in the icr2star. You can create your ow .bat file in the following way using a text editor:

```
DOS4GW indycar.exe
indycar.exe -H
```

or, if you have Cart Racing

```
DOS4GW cart.exe
cart.exe -H
```

then save as runicr2.bat

Alternatively you can use a does emulator like DOSbox for windows to emulate sound, but that may provide you with low frame rate.:

1. Download DOSbox from http://www.dosbox.com. Version 0.72 was the current version by the time I wrote this book.

2. Once you run DOSbox and you will see the Z:\> prompt.

3. Mount the icr2 directory by typing `MOUNT C C:\CART` where C, in this example is the letter of your C drive.

4. Type `C:` in the Z prompt to change to your newly mounted drive

5. Type `CART -H` to run incr2 in 640x480 mode.

2.4.2 Windy version

Follow the normal Win9x procedures. I have tested Windy in Windows XP with no problems at all.

2.4.3 Patching

Follow the normal patching procedures for the DOS or Win9x versions as described in previous chapters.

2.5 Windows Vista

2.5.1 Installation of DOS version

I did not try the DOS version, but according to the DOSbox FAQ (http://www.dosbox.com/wiki/Main_Page) DOSbox supports Vista and therefore you can try the same approached described above for Windows XP.

2.5.2 Installation of Windy

I have tested Windy on Vista Home Basic Edition without any problems (it actually runs better in this OS for me). If you have problems make sure you install ICR2 as administrator and install all Vista patches available from Windows Update tool.

2.5.3 Patching

Follow the normal patching procedures for the DOS or Win9x versions as described in previous chapters.

2.6 Mac OS

2.6.1 Installation

Only the Mac version of ICR2 can run on Mac OS. Since I don't posses a Mac neither the ICR2 Mac version I did not tested it. Please refer to the manual included in your copy of the Mac version for installation instructions.

2.6.2 Patching

Same guidelines as for the game installation. See Table 2 for the patch list.

2.7 Linux installation

2.7.1 Installation

Running DOS version of ICR2 on Mandriva Linux with DOS-emu:

1. First you should have a installation of the DOS 1.0.2 in your windows or Linux partition. If you are running the game from windows partition be sure to have permission to write to the ICR2 directory.

2. Download DOSemu from http://dosemu.sourceforge.net/ Since I am using Mandriva linux I have downloaded the version 1.4.0.0 in its rpm version.

3. I have installed the rpm package in Mandriva it just a double click on it and entering my root password.

4. Ton configure your joystick you may have to conigure the following line in the DOSemu config files at /etc/dosemu/dosemu.conf:

   ```
   $_joy_device = "/dev/input/js0"
   ```

   Note: I have faced calibration problems with my wheel running ICR2 in DOSemu.

5. run DOSemu from a terminal by simply typing:

   dosemu

6. in DOSemu prompt go to the directory where linux has mounted your windows particion. In my case is drive E: so i type:

   ```
   E:
   ```

6. in DOSemu pront use DOS comnand cd to go to the directory where icr2 is installed.
   ```
   CD WINDOWS\C\SIERRA\CART\DOS\CART
   ```

7. If you are running a copy of ICR2 located in a windows partition you should already have run the `SETUP.EXE` program to configure sound. This was may case so I have no problem with sound at all. But if you are running a copy of ICR2 which did not had yet run the `SETUP.EXE` you should run it now from DOSemu in orther to attempt to setup your sound card under the emulator. However, copy an already configured installation from the Windows to the Linux partition may be the more safe option to get sound working.

8. run icr2 in 640x480 mode. I've got 31 FPS in Mandriva with DOSemu 1.4.0.0
   ```
   CART -H
   ```
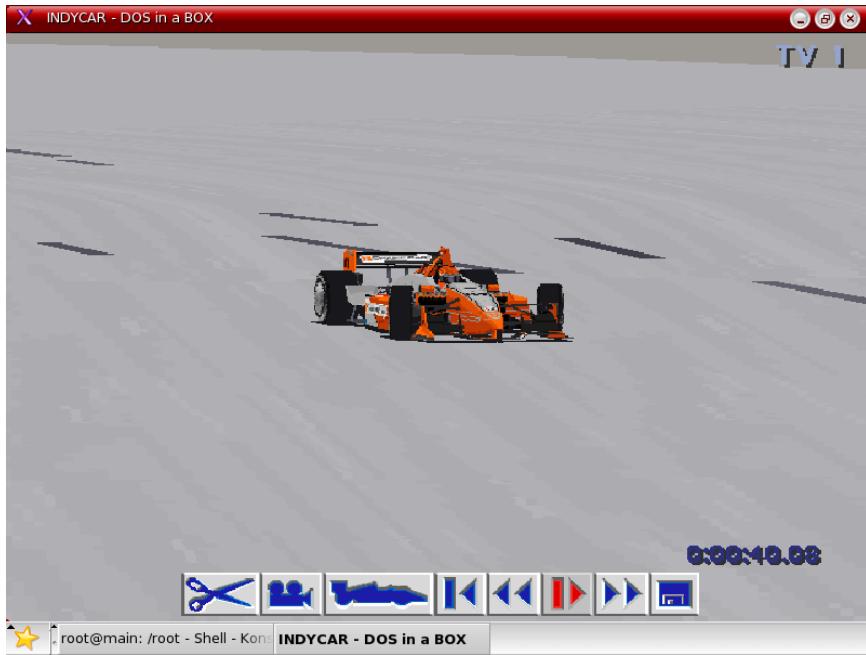
Illustration 1: ICR2 DOS version 1.0.2 running on Linux

Running Windy on Linux with Wine:

Attempts have been made to run Windy on Linux using the Wine emulator. Windy needs to be installed first on the Windows partition and be called from Wine when running Linux. However, the game does not run past the open screen and more research is necessary on this topic.

2.7.2 Patching

Patching should be done under either DOS or Windows according the original installation.

Chapter 3 Controllers

This chapter presents a guideline on how to configure controllers on ICR2.

3.1 Overview

ICR2 supports playing via keyboard, joystick, gamepad or wheel. However it does not supports force feedback.

> **Note:**
>
> Be sure to have the latest version of ICR2 with all patches applied, i.e. DOS version 1.0.2 or Windy 1.0.1 otherwise you may face problems with default controls always assigned the mouse, specially in the DOS version.

3.2 Controller Calibration

3.2.1 Controller Calibration in the DOS version

ICR2 will ask you to calibrate your controllers 1 and 2 after you start the game for the first time or after you start the game with one or the two of your controllers disconnected.

> **Note:**
>
> If you are using the DOS version sometimes when disconnecting your controller from the PC you may face a switching menus behaviour. To solve that problem close the game then delete the CALIB.VAL file from the game directory, reconnect your controller to the PC and restart the game. ICR2 will ask you to recalibrate your controller. Note that you may also have to reassign you controller buttons in the OPTIONS/CONTROLS/SET CONTROLS screen.

> **Note:**
>
> I have faced problems to calibrate my wheel when running the DOS version under Linux/DOSemu. The game cannot find the minimum and maximum range of the wheel and does not centre it properly causing the maximum steer right to loop back to left. I don't know how to solve this problem.

3.2.2 Controller Calibration in the Windy version

Go to the Windy Menu Options->Calibration to calibrate your controllers.

Note:

If you are having problems calibrating your controller delete the CALIBWIN.VAL file from the game directory, reconnect your controller to the PC and restart the game and calibrate your controller again.

3.3 Controller Configuration

3.3.1 Configuring controllers in the Windy Version

Go to the Windy Menu Options->Set Controls and use the modify buttons to assign the driving functions to your keyboard or controller keys. After that you can save your configuration using the 'save as' button. The controller configuration will be save into a .cf1 file in the games main directory. You can save several profiles for different controllers that you can later load using the 'load' button.

Note:

It may be a wise idea to backup you .cf1 files. If you need to reinstall the Windy version just place them again into your game main folder.

Chapter 4 Simulator Options

This chapter presents a guideline on ICR2 options.

4.1 Racing modes

The game has 4 racing modes:

- Pre-Season Testing: Practice alone at any race track
- Single Racing: Race an complete race weekend at selected track
- Championship Season: Run a complete championship at the tracks selected in the CALENDAR file.
- Multi player: Run against a friend with a modem dial up connection.

4.2 File Operations

Use the Windy File menu to save and load race (.rac files) or championship (.cmp files) progress. It is not possible to save a pre-season testing session.

4.3 Driver Information

Here you can see all drivers included in a car set including pace and player cars. In this screnn you can edit your name and team information:

- Driver's name, surname and nick name
- Driver's home town / nationality
- Team Name
- Car chassis
- Car Engine
- Car Tire brand

Tip:

Chassis, Engine and tire manufacture names can be changed in the drivers2.txt file located in the car set folder.

4.4 Car Sets

In the car set screen you can see and change the current car set.

4.5 Tracks

Select the track to race at Single Racing or Pre-Season Testing modes. The mas number of tracks that can be placed on the TRACKS folder is 32.

Tip:

Since the maximum number of tracks that can be placed in the track folder is 32 you can use a swap folder to swap your favourite tracks before starting the game.

4.6 Realism

Several Realism options can be adjusted at this screen:
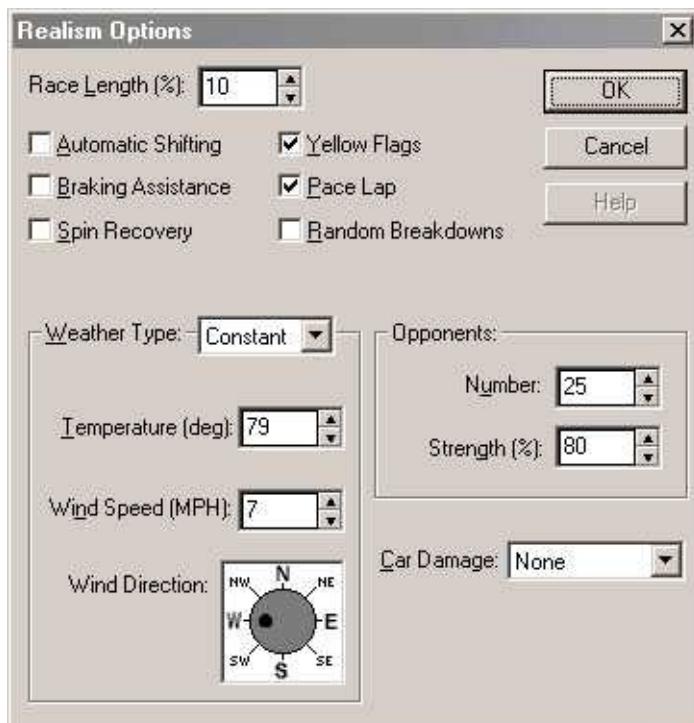
Illustration 2: Windy Realism Options Screen

MEANING	TIPS
Race Length (%)	Adjusting this option in affect number of laps in Single and Championship Modes
Automatic Shifting	The computer will change gears for you

MEANING	TIPS
Braking Assistance	Computer will help you with braking. Expirenced sim races should disable this option for a better race performance.
Spin Recovery	Computer will help to place your car back at the track after a spin.
Yellow Flags	Check this box if you wish to apply CART yellow flag rules.
Pace Lap	Check this box if you wish to run a pace lap led by the pace car before start the race with a rolling start.
Random Breakdowns	Checking this box will make computer to apply random mechanical failures based on real race statistics.
Weather Type	Select weather type as Constant if to make the game apply the values selected in the temperature and wind boxes. Select weather type as Random if you wish the game to apply random weather conditions.
Temperature	Adjust the track temperature in degrees F.
Wind	Adjust Wind Speed (Mph) and wind direction
Opponents Number	Select the number of the opponents to race against in Single Race and Championship Modes.
Opponents Strength	This value will adjust the maximum speed of the AI controlled cars.
Car Damage	Select between None, Arcade or Realistic car damage.

4.7 Graphics

-

4.8 Sounds

-

4.9 Set Controls

-

4.10 Calibration (Controllers)

-

4.11 Communication

-

4.12 Car Setup

You can perform several adjustments to your car on the ICR2 garage.
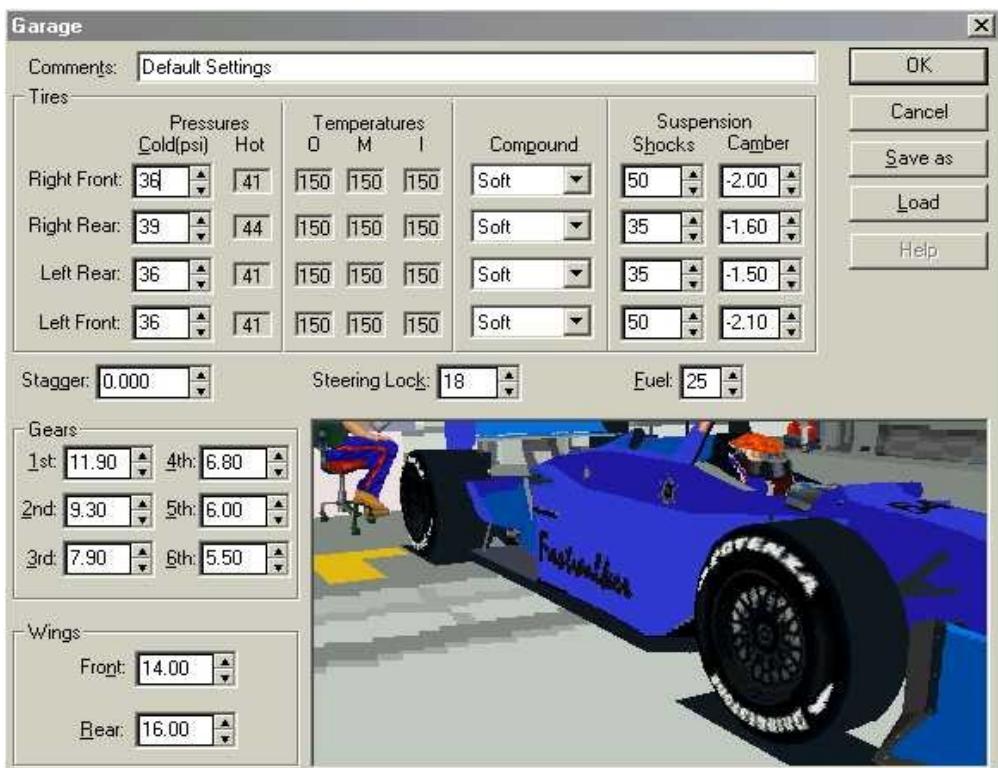
Illustration 3: The ICR2 Garage, Windy version.

MEANING	TIPS
Pressure of the tires	Adjusting tire pressure affects the grip and tire heating. The garage settings allow us to change the pressure of the four tires in psi units at cold condition. The garage will also give an estimation of the tire pressure when hot.
Temperature of the tires	Estimation of the temperature values at the inside, middle and outside surface of each tire can reach is given for the adjusted pressures.

MEANING	TIPS
Tire Compound	The following tire compounds can be selected for each tire individually. ● Soft ● Medium ● Hard ● Rain (I swear I saw this option once, in DOS version only, at a track reporting raining condition)
Suspension shocks	To do
Suspension camber	Adjusting the camber angles may affect your grip. Different adjustments should be done for oval and road courses in order to achieve better grip and performance.
Stagger	To do
Steering Wheel Lock	Adjust a higher angle lock if the track has tight hairpins or low angle lock for oval tracks.
Fuel Load	Reduce fuel load for qualifying and increase it according to your race strategy.
Gears	Only 6 gears are available. Adjust the 6th gear to a lowest value if you wish to increase you top speed. After that adjust the lowest gears to achieve best re-acceleration.
Wings	Use low angle values for super speedways and tracks with long stretches. Street course usually use high angle values. The difference between front an rear wing angles may cause over or under steering.

4.13 Replay (VCR)

Use the Replay option to watch a instant replay of the current simulation session or to watch previous saved replay files.
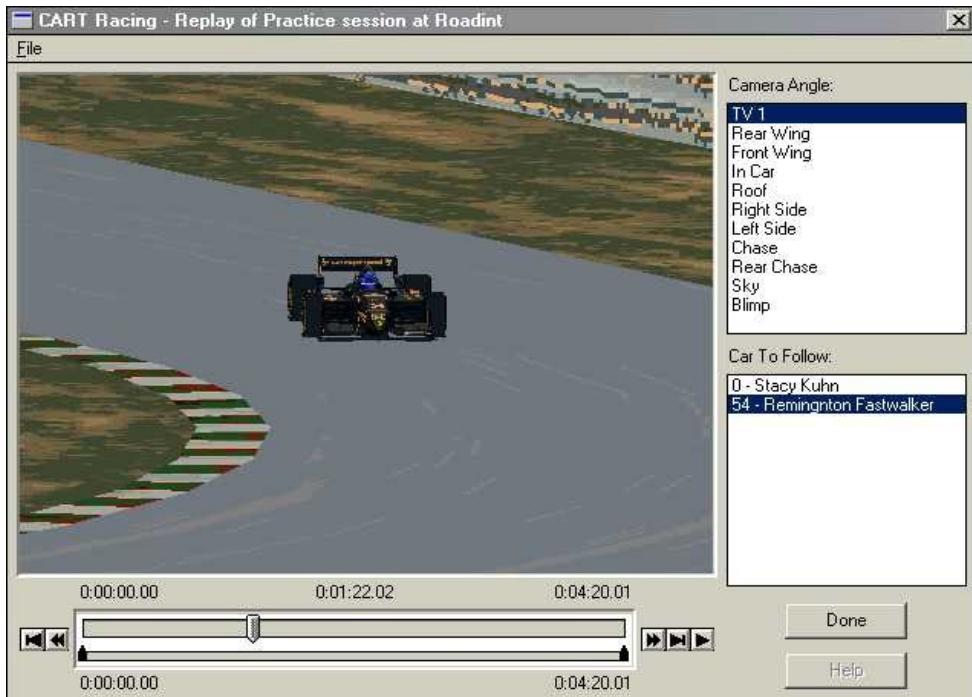
Illustration 4: ICR2 Replay Feature (VCR), Windy version.

Note:

The replay files *.rpy* do not save the track name for which the replay was saved. Therefore, you must select the correct track before entering the Replay mode.

4.14 Help

A manual is available in the simulator CD-ROM. You may find useful information there which may not have been include in this book.

Chapter 5 The Simulator

This chapter presents general information on game operational aspects like dash board, pit information, etc.

5.1 The Dashboard

The cockpit dashboard represents a Indycar mid 1990's as show in Illustration 5 .
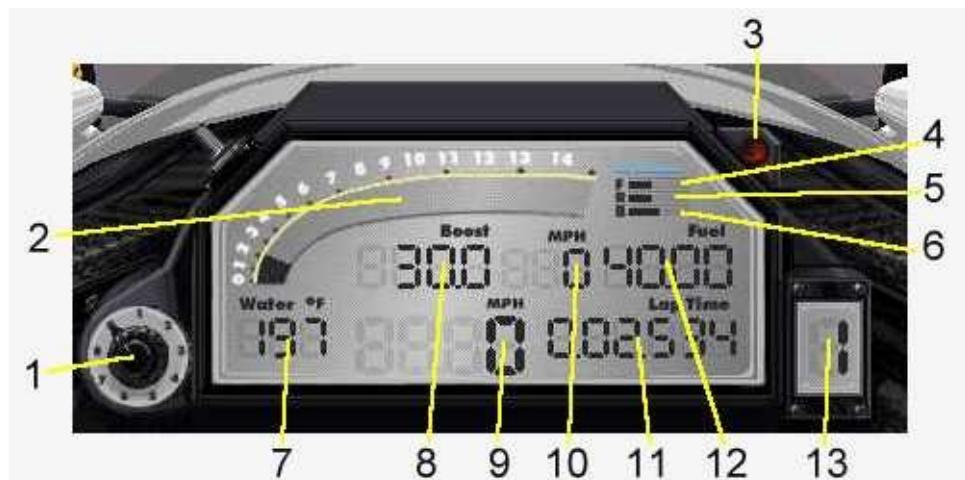
Illustration 5: The cockpit dashboard

ITEM	MEANING	FUNCTION	Keys
1	Turbo Boost Knob	Regulates the boost of the turbo charger	L : Increase boost K : Decrease boost
2	Tachometer	Displays the engines RPM	N/A
3	Master Warning Light.	Blinks when: ● fuel is low (under 5 gallons) ● Water temperature is high (Above 220º F) ● Engine RPM is over 13000	-

ITEM	MEANING	FUNCTION	Keys
4	Front Anti-roll Bar Indicator	Indicates the regulation of the front anti-roll bar. Left – Soft Right - Stiff	- : Soften + : Stiffen
5	Rear Anti-roll Bar Indicator	Indicates the regulation of the rear anti-roll bar. Left – Soft Right - Stiff	[: Soften] : Siffen
6	Brake Bias Indicator	Indicates the front/rear break balance.	' : frontward ; : rearward
7	Water Temperature	Displays the water temperature in F.	N/A
8	Turbo Boost Pressure	Displays the current Turbo boost pressure. Maximum value is 45 in/Hg (22 psi).	N/A
9	Multi-Function Display	Default :speed	D : switches between - Displays rpm x 10, - estimated laps with remaining fuel - speedometer
10	Speedometer	Displays the current speed in mph.	N/A
11	Lap Time Indicator	Displays the current lap time.	N/A
12	Fuel Load	Displays the number of gallons of fuel remaining in the tank (US Gallons). The fuel tanks maximum load is 40 gallons. If load is under 5 gallons the word FUEL will appear blinking on the screen as well as the Master Warning Light.	N/A
13	Current Gear	Displays the Current Gear (1-6)	Customizable

5.2 Pit Information (Radio)

The "radio" communication with the pit crew is represented by a number of panels triggered via the Keyboard's function keys and displayed at the top right corner of the screen.

Key	Function	Tips
F1	Lap Information	Display the lap number, lap time and time gap to the opponents ahead and behind you.
F2	Standings	Displays the qualifying or race standings
F3	Fuel Information	Display amount of fuel left in the tank in US gallons and the average numbers of laps that you can race with.
F4	Tires Temperature	Display the tires temperatures.
F5	Tire Wear	Shows the wearing of each tire As the bars for each tires decreases you will lose grip. If the bar is low you tire can blow.
F6	Not used	-
F7	Wings Angle	Use this option to ask your team to adjust the wings at the next pit stop.
F8	Stagger	Stagger angles.
F9	Pit Strategy	Tell your pit crew about fuel and tires change for the next pit stop.
F10	Switch camera view during game play	Switch between cockpit, rear chase and helicopter views.

5.3 Pit Information (Pit Board)

Every Time You cross the start/finish line your pit crew you show the pit black board with some race information. The pit board will be displayed at the top left corner of the screen.

During Testing Session (road courses / ovals):

- best lap time / average speed in mph
- last lap time./ average speed in mph

During Qualify (road courses)

- Current Qualifying Position
- best lap time
- last lap time

During Qualify (short ovals)

- Average speed in mph of each qualifying lap
- Qualify Position

During Qualify (super speedways)

- Pit board is not shown at Long ovals.

During Race:

- Race Position
- Lap Number
- The Car Number of the opponent ahead you
- Time gap to the opponent ahead you
- The Car Number of the opponent behind you
- Time gap to the opponent behind you

Illustration 6: Pit board shown at race session

Note:

Pit crew may decide not to include all information above all the time.

5.4 Racing Rules

ICR2 simulates the 1995 IndyCar season rules.

5.4.1 Flags

Flag	Meaning	Tips
Green	Race is on	Speed up. Race is On!
Yellow	Pace Lap / Caution.	Slow down. Overtaken is forbidden
White	Indicates the Last Lap of the race or session.	-
Chequered	End of Race or Session	-
Black	Driver has received a penalty or been disqualified	Go to the pits and stop at your pit stall for a stop and go.

5.4.2 Race Start

Racing is started with a rolling start after the green flag is displayed at the DLONG defined in the GFLAG parameter in *track.txt* file. A pace lap can be run before the green flag as defined in the Realism options. The pace lap is run at low speed lead by the pace car under yellow flag. The cars run the pace lap are aligned in the pace lap 2 queues on road courses and short ovals and 3 queues on the super speedways. The number of cars per row on the formation lap can be configure on the *track.txt* file.

Overtaken is forbidden during the pace lap and at green flag you should not pass the pace car before it enters the pit lane. IF you do so you will received a stop and go penalty indicated by the black flag.

5.4.3 Race Penalties

The following situations will result in a black flag and a pit stop and go penalty:

- Overtake any car (including pace car) during yellow flag when the green flag is waved
- Exceed the 80mph pit lane speed limit

> **Note:**
>
> You will be disqualified if you do not stop at the pit after a black flag in 3 laps.

5.5 Weather Conditions

The following weather conditions are simulated by icr2:

- Windy (speed and direction)
- Track temperature
- Rain (at some extent in DOS version only)

Chapter 6 Game Directory Structure and Main Files

This chapter presents information on the game directories structure and main game files.

6.1 Game Directory and File Structure

Icr2/Cart Racing has the following directory structure:

- ICR2 or CART (the main folder)
    - CARS
    - EFFECTS
    - OBJS
    - PAINTSHO
    - ROL
    - SOUND
    - TRACKS

    See the following chapters for explanation on each game folder and main files.

6.2 ICR2 or CART - The Main Game Folder

The ICR2 main folder contains the game and paint shop application and several files related to the main game operation. Files related to cars, tracks, sounds and cockpits are stored in individual sub-folders.

The files and folders contained in the Main game folder are explained in detail in the following sub-chapters.

6.2.1 The Calendar File

Definition:

The calendar file holds the list of events that will be run in championship mode. As far as I know ICR2 only allows one calendar file, this means that if you want to run a different set of events in a championship you will have to overwrite ICR2 original calendar file with your own. Different events in the calendar file can point to same track in the TRACKS folder so you can simulate different events run in the same track.

Format: ASCII text.

Tools: Calendar Editor by Juergen Hiller
http://www.thenorwaypits.com/1999_04/owheel/icr2/filez/calman32.zip

File location:

The Calendar file shall be placed in the game's main directory (.../CART or .../INDYCAR2).

Naming:

The Calendar file is named as follows:

CALENDAR

> **Note:**
>
> The Calendar file has no extension.

File structure:

The CALENDAR file is written in ASCII code and consists of the following sections:

- Event List

Event List:

Each line in the Event list corresponds to one championship event(track) in the championship mode. The parameters are as follows:

Month Day Number_of_prior_events Day/Night TrackFolderName Year

Month: Month of the event

Day: Day of the event

Number_of_prior_events: number of prior events in the same track during a season. Value cane 0 or 1, i.e you can run only two events on the same track in a season.

Day/Night: 0=day, 1=night. This feature is support only by NASCAR 1 and must be set to zero.

TrackFolderName: The exact name of the corresponding track folder

Year: The year the event takes place

Example:

```
 4  2 0 0 PHOENIX 1995


 4 = April

 9 = Day of the event

 0 = no previous event run in the same season

 0 = Tells whether event runs during day or night, day=0, night=1 (night is not
supported by ICR2)

 PHOENIX = the name of the track folder

 1995 = the year the event takes place
```

Note:

You can run different events in the same track by just creating a new line with a different date and counter index.

That's why they are referred to as events and not simply tracks, e.g. The events Michigan 500 and USS 500 where run in 1996 on the same track the Michigan super speedway. However, you will also need to edit the LAPS parameter in track.txt files to indicate the difference in the events:

Tracks run only once in a season:

LAPS 200

Tracks run twice in an season:

LAPS 200 200

Example:

```
 3 19 0 0 AUSTRAL 1995
 4  2 0 0 PHOENIX 1995
 4  9 0 0 LONGBCH 1995
 4 23 0 0 NAZARETH 1995
 6  4 0 0 MLWAUKEE 1995
 6 11 0 0 DETROIT 1995
 6 25 0 0 PORTLAND 1995
 7  9 0 0 ELKHART 1995
 7 16 0 0 TORONTO 1995
 7 23 0 0 CLEVLAND 1995
 7 30 0 0 MICHIGAN 1995
 8 13 0 0 MIDOHIO 1995
 8 20 0 0 NWENGLND 1995
 9  3 0 0 VANCOUVR 1995
 9  9 1 0 MICHIGAN 1995
 9 10 0 0 LAGUNA 1995
12 99 0 0 XXXXXXXX 9999
```

Note:

The last line in the file is always a dummy line according to the example above.

6.2.2 The Video Driver Configuration File (.bgi)

Definition:

The Video Driver Configuration file (.bgi) contain the profile for supported video cards. Usually this file does not require changes.

Format: Binary.

Tools: None.

File location:

The Video Configuration file shall be placed in the game's main directory.

Naming:

The Video Configuration file is named as follows:

EGAVGA.bgi

File structure:

Unknown.

Example:

N/A.

6.2.3 The Controller Configuration File (.cf1)

<u>Definition:</u>

The Controller Configuration file(.cf1) contain the profile for a game controller which assigns the controller keys and buttons to a function in the game. Several .cf1 files can exist in the main game folder each one containing a controller profile. This file does not require direct editing but is saved by the game when you edit the controller on the Set Controls screen and save your configurations.

<u>Format:</u> Binary.

<u>Tools:</u> None.

<u>File location:</u>

The Controller configuration files must be placed in the main directory (.../CART). The game will load all .cf1 files placed in the main directory and made them available in a list to be chose from the load option in the Set Controls screen.

<u>Naming:</u>

A controller configuration file is named as follows:

<filename>.cf1

<u>Example:</u>

keyboard.cf1

gamepad.cf1

wheel.cf1

<u>File structure:</u>

The Controller Configuration file is written in binary code and consists of the following sections:

- ??

??:

<u>Example:</u>

6.2.4 The Windows Controllers File

Definition:

The Windows Controllers file contains a list of Controllers Configuration files which exists in the game main folder.

Format: Binary.

Tools: None.

File location:

The Windows controller file shall be placed in the game´s main directory.

Naming:

The Windows Controllers file is named as follows:

CTRLSWIN.CFG

Example:

N/A

6.2.5 The Game Options File (.cfg)

Definition:

The Game Options file contains the value of all parameters that can be configured by the user in the game´s GUI like Yellow Flags On/Off, Damage Level, Breakdowns and so forth.

Format: Binary.

Tools: ICR2 Manager by Cowtown Racers.

File location:

The game options file shall be placed in the game´s main directory.

Naming:

The Main data file is named as follows:

gameopts.cfg

File structure:

The following table shows the binary structure of the .cfg files.

BYTE	MEANING	Value (Hex)
00-53	?	
54-55	Number of Opponents + 1 (limited on some tracks by the number of pit spots)	00-26 (0-38)
68-71	Race distance (%)	01-64 (0-100%)
72	Pace Car On/Off	00 : Off 01 : On
...		
89	Damage Level	00 : no damage 01 : Realistic 02 : Arcade
...		
93	Breakdowns On/Off	00 : Off 01 : On
...		
97	Yellow Flags On/Off	00 : Off 01 : On

Example:

N/A

6.2.6 The MIP File (.cfg)

Definition:

The MIP file seems to contain a list of mips related to nascar1 car liveries. Since ICR2 is probably based on NASCAR1 this file is believed not to be used by ICR2.

Format: ASCII text.

Tools: None.

File location:

MIP.cfg file is placed in the main game directory.

Naming:

The mip.cfg file is named as follows:

MIP.CFG

File structure:

...

Example:

```
nasc94  ¢d  nasc50  ¢d  engine  I#  good1   #¯  good2   #¯  good3   #¯
hoosier1#¯  hoosier2#¯  hoosier3#¯  skoa_1  ¢d  mill_2  ¢d  koda_4  ¢d
kell_5  ¢d  valv_6  ¢d  exid_7  ¢d  rayb_8  ¢d  fami16  ¢d  hoot19  ¢d
citg21  ¢d  maxw22  ¢d  dupo24  ¢d  quak26  ¢d  texh28  ¢d  penn30  ¢d
hard31  ¢d  skoa33  ¢d  redc38  ¢d  mein41  ¢d  coun51  ¢d  acde52  ¢d
petr55  ¢d  food64  ¢d  oliv71  ¢d  heil90  ¢d  pace_0  ¢d  fatm69  ¢d
skid00  ¢d  quic09  ¢d  dilp25  ¢d  okel47  ¢d  phos48  ¢d  spin56  ¢d
hist58  ¢d  ocea70  ¢d  vent74  ¢d  eter88  ¢d  slip93  ¢d
```

6.2.7 The Modems Configuration File (.cfg)

Definition:

The Modems Configuration file(.cf1) contain the profile for all modems supported by the game. New modems can be added to the list by adding configuration lines to the file.

Format: ASCII text.

Tools: None.

File location:

The modens.cfg file shall be placed in the game´s main directory.

Naming:

The Modems file is named as follows:

MODEMS.CFG

File structure:

...

Example:

N/A

6.2.8 The Main Game Data File

<u>**Definition:**</u>

The Main game data file is a Papyrus.dat file containing pictures used in the game´s GUI.

<u>**Format:**</u> Binary.

<u>**Tools:**</u> DooDat by Tim Medcalf, WinMip2 by Klaus Hörbrand and Pack/Unpack by Corey Rueckheim.

<u>**File location:**</u>

The *main.dat* file shall be placed in the game's main directory.

<u>**Naming:**</u>

The Main data file is named as follows:

`MAIN.dat`

<u>**File structure:**</u>

See Chapter 6.10 for a description of the .dat files.

<u>**Example:**</u>

The following files are included in the Windy *main.dat* file:

6.2.9 The Saved Race File (.rac)

Definition:

The Race file (.rac) contains the progress of a race. It is only used by Windy, DOS version uses the RACESAVE file to store the progress of a race.

Format: Binary.

Tools: N/A.

File location:

The *.rac* files can be saved in any directory. The default directory is the game main directory.

Naming:

The Race files are named as follows:

portland.rac

File structure:

...

Example:

...

6.2.10 The RACESAVE File

Definition:

The RACESAVE contains the progress of a race. It is only used by DOS version, Windy uses the Race file(.rac) to store the progress of a race.

Format: Binary.

Tools: N/A.

File location:

RACESAVE files are stored in track folder for the race being run.

Naming:

The Racesave files are named as follows:

RACESAVE

> **Note:**
>
> The RACESAVE file has no extension.

File structure:

...

Example:

...

6.2.11 The Saved Championship File (.cmp)

Definition:

The Saved Championship file (.cmp) contains the progress of a championship. It is only used by Windy, DOS version uses the SEASON file to store the progress of a championship.

Format: Binary.

Tools: N/A.

File location:

The *.cmp* files can be saved in any directory. The default directory is the game main directory.

Naming:

The Saved Championship files are named as follows:

my1995.cmp

File structure:

...

Example:

...

6.2.12 The SEASON File

Definition:

The SEASON contains the progress of a championship. It is only used by DOS version, Windy uses the Saved Championship file(.cmp) to store the progress of a championship.

Format: Binary.

Tools: N/A.

File location:

The SEASON files is located in the game main directory.

Naming:

The Season file is named as follows:

SEASON

> **Note:**
>
> The SEASON file has no extension.

File structure:

...

Example:

...

6.3 CARS – The Car Sets Folder

The CARS folder is the place where the car sets are installed. Each car set is installed in a sub-folder inside the CARS folder which only accepts up to xx car sets. If more than xx car sets are placed in this folder the error "No car sets directories were found" will be displayed after the opening screen and ICR2 will be closed.

> **Note:**
>
> If you remove the current selected car set from the CARS folder and restart the game you are going to get an error. In order to solve the problem you must place that car set back on the CARS folder. In case you lost the removed car set you can rename other car set with the name of the removed one. Finally if you don't remember the name of the removed car set you will have to edit the *gameopts.cfg* file using an hex editor.

6.4 EFFECTS – The Effects Data Folder

This folder contains the .3do files used by effects like smoke and dirt.

6.5 OBJ – The Miscellaneous Object Folder

This folder contain some objects used by the game like the .3do files used in the garage.

6.6 PAINTSHO – The Game´s Car Livery Paint Program Folder

This folder contains the files used by the Paintshp program graphical interface.

6.7 ROL – The Cockpit, Dashboard and Fonts Folder

This folder contains the dash board, flags and fonts used by the game.

6.8 SOUNDS – The Music and Sound Data Folder

This folder contains all the sound files used by the game like the sound engine and anouncer.

6.9 TRACKS – The Track´s Folder

The TRACKS folder is the place where the racing tracks are installed. Each track is installed in a sub-folder inside the TRACKS folder which only accepts up to 32 tracks. If more than 32 tracks are placed in this folder the error "No track directories were found" will be displayed after the opening screen and ICR2 will be closed.

6.10 The .Dat Files

Definition:

The Papyrus .dat files are single files containing several game files packed together without compression.

Format: Binary.

Tools: DooDat by Tim Medcalf, WinMip2 by Klaus Hörbrand and Pack/Unpack by Corey Rueckheim.

File location:

The game .dat files can be found in the several folders like the main folder, tracks folder, car sets folder and others.

Naming:

The game .dat files are named as depending on they usage follows:

MAIN.dat

CARS95.dat

PORTLAND.dat

OBJ.dat

ROL.dat

SOUND.dat

etc.

File structure:

The .dat files consists of 3 parts:

- Header
- Part 1 - Information about embedded files.
- Part 2 – Embedded files

Header:

The header contains the information about the number of embedded files.

BYTE	MEANING
00-01 (unsigned integer)	Number of Embedded files.

Part -1 Information about embedded files:

This part starts in byte 3 and contains information about each embedded file stored in several records containing 27 bytes each. The size of part-1 is equals to the number of embedded files multiplied by the 27:

BYTE	MEANING
02-03 (integer)	Always = 5
04-07 (unsigned long integer)	Length of the embedded file
08-11 (unsigned long integer)	Length of the embedded file(again!)
12-24 (string 13)	File name. Non used bytes are filled with zeros.
25-28 (unsigned long integer)	Starting offset of the embedded file in the .dat.

Part -2 Embedded files:

This part contains the actual embedded files each one starting in the byte offset defined in part-2.

<u>Example:</u>

N/A.

Chapter 7 **Track Files**

This chapter presents a description of the ICR2 track files.

7.1 Overview

All the track files with the exception of the track.txt, records.txt, the .lp files, the .stg and the .st1 files are placed in a papyrus .dat file. The following sub-chapters presents a description of each individual track file.

7.2 The Track Information File (.txt)

Definition: The track information file is a text file that contains several track parameters like track name, pit wall position, rain probability, tire consumption, number of laps and others.

Format: ASCII text.

Tools: ICR2 Manager by Cowtown Racers (Only PIT configuration).

File location:

The track .txt file is placed in every track directory.

Naming:

The track .txt file is named as follows:

<name of the track>.txt

Example:

portland.txt

File structure:

The file contains several lines each one starting with a tag word in capital letters. Each tag word contains one ore more track parameters. Table 3 Show the tag words in sequence and their meaning.

> **Note:**
>
> ICR1 and NASCAR 1/2/3 uses additional word tags from the ones show in Table 3. The table is only describing the word tags applicable to ICR2.

Tag word	Meaning
TNAME	Track Name in Choose Track Menu.
SNAME	Track Name in Standings.
PIT	Has several parameters defining the position of the pit lane. Values can be obtained from the .trk file: Value 1 : DLAT of the wall dividing the pit lane and the racing track (outer pit wall). It has a positive or negative value depending on whether the pit lane is one the left or right side of the .trk centre line. Value 2: DLONG of the pit access road. It is the point the AI cars (including pace car) enters the pit access road. It is the transition beteween the race.lp and the pit.lp.

Tag word	Meaning
	Value 3: DLONG of the place where the pace car parks. Value 4: DLONG of the last (player's) pit stall. Value 5: DLONG of the first (AI) pit stall. Value 6: DLAT of the cars (including pace car) when parked in the pit stalls. Value 7: DLONG where AI cars (including pace car) leave the pit and enter the race track Its is the transition between the pit.lp to race.lp. Value 8: Number of pit stalls. (including player's car and pace car if PIT2 is not specified). Value 9: DLONG slightly less than Value 10. Value 10: DLONG of the beginning (exit) of the pit wall Value 11: DLONG of the end (entrance) of the pit wall. Usually same as Value 3 in the original tracks.
PIT2	Same as PIT, can be used to specify a second pit lane in the track. Value 8 will determine the number of pit stalls in PIT2 excluding player's car and including pace car.
SPDWY	Determines the type of wings to be used on the car and wings angle range: Value 1: 0 = road course wings 1 = super speedway wings Value 2: Initial lap of the pit window for AI cars Value 3: last lap of the pit window for AI cars Note: AI will attempt to pit during laps specified in Values 2 and 3 during Green flag. Guidelines: Short Track = 10 lap window Speedway = 7-8 lap window Super speedway = 5 lap window Road Course = 3 lap window
LENGT	Track Length in miles with 3 decimal places. Only used for display purposes. Example: 2500 means 2.5 miles.
LAPS	Value 1: Number of laps for a 100% length race. Used in Single Race and for the 1st race in the season on this track. See CALENDAR file description. Value 2: Number of laps for a 100% length race. Used in case an second race is run on the track in the same season. See CALENDAR file description. Value 2 is optional and only used if there is a 2nd race run on the same track in the same season. See CALENDAR file description.
FNAME	Full Track Name displayed on the track information screen.
CITYN	City Name and County displayed on the track information screen.
COUNT	Track Country displayed on the track information screen.
PACEA	Pace Lap information. Value 1: Number of columns in a pace lap formation. Usually 2, IMS uses 3! Value 2: DLONG of the track where pace lap begins Value 3: DLAT (distance from the centre .trk line) for the inside column (negative value).

Tag word	Meaning
	Value 4: DLAT (distance from the centre .trk line) for the outside column (positive value). Value 5: Unknown. Usually 0.

QUAL	Qualifying rules:
	Value 1 : 0 = timed open session
	           1 = lone average time during a specific number of laps
	           2 = lone best lap during specific number of laps
	Value 2 : If Value 1 = 0 : Duration in minutes of qualify session
	           If Value 1 = 1 : Number of laps of qualify session

BLIMP	Blimp starting location in .3do papy units Value 1 : X coordinate Value 2 : Y coordinate
GFLAG	DLONG of the point where green flag will be triggered. Lower values mean distant from the S/F line and higher values means closer to the S/F line.
TTYPE	Track Type: 0 = short oval (less than 1 mile) pace speed 40 mph 1 = mile oval pace speed 55 mph 2 = large oval (1 to 2 miles) pace speed 70 mph 3 = super speedway pace speed 90 mph 4 = road course pace speed 70 mph 5 = temporary street course ? 6 = temporary road course ? 7 = reserved oval ? 8 = reserved road course ?
CARS	Value 1 : Number of minimum cars on the race (or number of cars allowed to attempt qualify?). Value 2 : Maximum Number of cars on the race including Pace car and player car. It is equals to the number of pit stalls (PIT Value 8 + PIT2 Value 8). Should be usually dimensioned according the number of positions in the pit lanes of the real track.
TEMP	Value 1 : Average temperature at time of day and year race is run in F. Value 2 : Range of -/+ variation in F. Note: Values of the original tracks were determined from historical weather data. Both values are in tenths of degrees Fahrenheit with one decimal place. Example: 839 means 83.0 F.
TEMP2	Same as TEMP can be used in championship mode as an option to TEMP.
WIND	Value 1: direction of wind Value 2: average direction variation Value 3: speed (mph) at time of day and year race is run Value 4: range of speed (mph) variation. Value 5: direction variation ? Values of the original tracks determined from historical weather data. The first

Tag word	Meaning
	two values are the direction of the wind and variation thereof, the second set are the speed in tenths of a mile per hour, the final value should not be changed. WIND is only used if the weather is defined as variable in the Realism options.If the weather is defines as constant then the values defined in the Realism screen will be used for all tracks.
WIND2	See WIND.
RAIN	Rain probability. Seems to be removed from Windy. No rain is actually displayed but the physics change and and a WET message appears in the screen during rain. Value 1 : probability of rain in %. Value 2 : reserved?
BLAP	Average best lap time for the AI opponents during qualify. Values in hundredths of second. Half of the field will attempt to qualify faster than this and the other half slower.
RELS	Relative speed of opponents at the track in % for racing (not for qualifying). Its is a percentage of the speed defined in the .lp files. Note that this will also affect the pit.lp speed so be careful when dimensioning this value and the pit.lp since a higher values will make the AI to break the speed limit (which you cannot do it!). Use opponent strength % in the game for changing both qualifying and racing speeds at once.
THEAT	Tire heating parameters Value 1: heat generated by the tire under dry condition Value 2: heat generated by the tire under dry condition Value 3: heat generated by the tire under dry condition Value 4: heat generated by the tire under dry condition Value 5: heat generated by the tire under wet condition Value 6: heat generated by the tire under wet condition Value 7: heat generated by the tire under wet condition Value 8: heat generated by the tire under wet condition
TCFF	Tire Compound Friction Front tires (or Tire Consumption Front?) : Value 1: Unknown Value 2: Unknown Value 3: Unknown Value 4: Unknown Value 5: Unknown Value 6: Unknown Value 7: Unknown Value 8: Unknown
TCFR	Tire Compound Friction Rear tires (or Tire Consumption Rear?) Value 1: Unknown Value 2: Unknown Value 3: Unknown Value 4: Unknown

Tag word	Meaning
	Value 5: Unknown Value 6: Unknown Value 7: Unknown Value 8: Unknown
TIRES	Characteristics of Type 1 tires (goodyear in 1995 season) Value 1: Grip of the left side tires Value 2: Heat generated by the left side tires Value 3: Wear of left side tires Value 4: Grip of the right side tires Value 5: Heat generated by the right side tires Value 6: Wear of right side tires Value 7: Unknown- Always 0. Guidelines: Grip: Higher the value higher the grip, but also higher the heat and decreases tread life. Heat: Higher the valuer higher the heat generated by the tire. Wear: Higher the value increasing the the tread life of the tire.
TIRE2	Characteristics of Type 2 tires (firestone in 1995 season) Same values as TIRE.
SCTNS	Unknown: Maybe it has to do with splitting of the track in sectors or with the number of laps pace car stays on the track during yellow flags depending on the severity of the acident: Value 1: Usually 8 Value 2: Usually 5 Value 3: Usually 3

Table 3: <Track_name>.txt structure

Example:

```
TNAME Roadlands
SNAME Roadlands
PIT   98425 35999341 2752756 35999341 2652756 252465 3845589 18
35799341 35999341 2952756
SPDWY 0 32 33
LENGT 1214
LAPS  54
FNAME The Farm Side Circuit
CITYN Roadlands
COUNT Ireland
PACEA 2 36799341 45000 -45000 0
QUAL  0 10
BLIMP -11518847 -4134316
GFLAG 35999341
TTYPE 4
CARS  18 18
TEMP  680 60
TEMP2 750 40
WIND  2952790016 268435456 96 70 3937053354
WIND2 2952790016 268435456 96 70 3937053354
RAIN  00 00
BLAP  125000
RELS  98
THEAT 12000 11000 10000 15500 9500 7500 5500 15000
TCFF  61535 59535 57535 57535 30800 29989 28989 39000
TCFR  65535 63535 61535 61535 34800 33989 32989 43000
TIRES 68716 5500 48000000 68716 5500 48000000 0
TIRE2 65535 5700 76000000 65535 5700 76000000 0
SCTNS 8 5 3
```

7.3 The Records File (records.txt)

Definition:

The Records.txt file as the name suggest contains the records at a track.

Format: ASCII text.

Tools: None.

File location:

A records .txt file is placed in every track directory.

Naming:

The records .txt file is named as follows:

RECORDS.txt

File structure:

The file contains several lines each one starting with a tag word in capital letters. Each tag word contains a record parameter. Table 4 Show the tag words in sequence and their meaning.

Tag word	Meaning
FASTN	Fastest Driver Name (Overall)
FASTT	Fastest Driver Time in seconds with 3 decimal places precision. Example: 256200 means 2:56.200
RACEN	Fastest Drive Name (During a race). No space allowed between first and last name, use an underscore. Example:Ton_Fastwalker
RACET	Fastest Drive Time (During a race). Same format as FASTT
RACEP	This parameter has always the same value as RACET.
RACEL	Unknown – has a single value like 1.
PLYRN	Unknown – contains a player name.
RACEO	Fastest Opponent Time scored by a AI or human network player during a race against a player. Same time format as FASTT
OPPN	Opponent Name who scored the RACEO time.

Table 4: Record.txt structure

Note:

Some *record.txt* files may not contain all tags. Some tags will only appear when that record is established for the first time.

Example:

```
FASTN T.Fatswalker
FASTT 256200
RACEN Ton_Fastwalker
RACET 61769
RACEP 61769
RACEL 1
PLYRN Ton_Fastwalker
RACEO 62136
OPPN  Joe Smith
```

7.4 AI files (.lp)

Definition:

Illustration 7 shows the result of bad AI files.

Illustration 7: Bad AI Files

Format: Binary

Tools: LpEditor by Robert Sikso, lpman by Juergen Hiller, rpytolp by Nigel Pattinson and lpconv by Ton Fastwalker.

File location:

The .lp files are placed in every track directory.

Naming:

The file .lp are named as follows:

maxpanic.lp

minpanic.lp

maxrace.lp

minrace.lp

pace.lp

pass1.lp

pass2.lp

pit.lp

race.lp

File structure:

...

Example:

...

7.5 The Car Set Ups Files (.st1 and .stg)

Definition:

Format: Binary

Tools: None.

File location:

Naming:

File structure:

Example:

...

7.6 The Track Data Packed File (.dat)

Definition:

The track .dat file contains all the track 3d surface, 3d objects, physical position and elevation of the track surface and walls and the camera files.

Format: Binary.

Tools: DooDat by Tim Medcalf, WinMip2 by Klaus Hörbrand and Pack/Unpack by Corey Rueckheim.

File location:

The .dat file shall be placed in the track directory of the track which it belongs to.

Naming:

The track .dat file is named as follows:

<name of the track>.dat

Example:

```
portland.dat
```

File structure:

See Chapter 6.10 for a description of the .dat files.

Example:

N/A.

7.7 The Track Surface Definition File (.trk)

<u>**Definition:**</u>

In ICR2 each track is made up of several sections which can be either straights or curves.

The .trk is the file which contains the physical definitions of a every track section that is, the location of the walls, elevations, type of surface (tarmac, grass, dirt, etc.), track length, number of sections, section type (straight or curve), sector length etc.

The .trk file is most likely used by the game engine for the following tasks:

- check collision between the cars and the racing surface and walls

- define the amount of traction a car may have on different types of surface like tarmac, grass, dirt, etc.

- to determine the position of cars in relation to each other on the race (standings)

<u>**Format:**</u> Binary.

<u>**Tools:**</u> .trk2txt/txt2trk by Marcelo Bassino and N3Def by Chas Bornemann.

<u>**File location:**</u>

The .trk file shall be placed in the track.dat or as a standalone file in the folder of the track which it belongs to.

<u>**Naming:**</u>

The Track Surface Definition file is named as follows:

<name of the track>.trk

Example:

```
portland.trk
```

<u>**File structure:**</u>

The .trk file is written in binary code and consists of the following sections:

- Header
- E-lines definitions (aka part 1)
- Surface limits (aka part 2)
- Track Sections definitions (aka part 3)

Header:

Part 1:

Part 2:

Part 3:

7.8 The Camera Set File (.scr)

Definition:

The camera set file (.scr) contains the set of cameras for a track that can be seen as TV1 and TV2 in the replay screen. The .scr files only specifies the sector of the track each camera will cover, the type of each camera and which record in the .cam file each camera is addressing to. As we will see later in the description of the .cam files the other camera parameters like x,y,z coordinates are defined in the .cam file. I actually like to think of the .scr file as the "TV director" file since, similar to a TV director, this file decides when and which camera from the .cam file will display the action.

Format: Binary.

Tools: Cam Editor by Chas Bornermann.

File location:

The .scr file shall be placed in the track.dat or as a standalone file in the folder of the track which it belongs to.

Naming:

The Camera Set file is named as follows:

<name of the track>.scr

Example:

```
portland.scr
```

File Structure:

The .scr file is written in binary code and consists of the parts shown in the following table:

BYTE	MEANING
00-11	Header
12-xx	Part-1: Camera Sets (list of cameras in TV1 and TV2)

The File size depends on the number of cameras in the camera sets.

Header:

The header contains the information on the number of camera sets in the file.

BYTE	MEANING
00-03	Number of Camera Sets (TVs)
04-07	Number of Cameras in Camera Set 1 (TV1)
08-11	Number of Cameras in Camera Set 2 (TV2)

Camera Sets definition:

This section of the .scr file presents a list (software record) of cameras contained in TV1 and TV2. Each record individual in this part represents a camera and has the following parameters:

- at which point in the track length each camera in a Camera Set (TVx) will start and stop "shooting"

- the position in the .cam file the parameters for the camera shall be fetched from.

- The type of camera: panning or stationary.

   This section of the file starts at byte 12 and may have two different formats depending on whether the track has one camera set (TV1) or two camera sets (TV1 and TV2) as shown in tables below:

Format for .scr files with only one camera set (TV1):

Double Word	MEANING
1	Camera Position Index in the .cam file: A index usually starting from zero indicating the position of the camera in the .cam file. For a panning camera (type 6) it indicates the position of the camera in the part 1 of the .cam file and for stationary cameras it indicates the position of the camera in part 2 of the .cam file . The sequence 17, 0, 2, 3, 4, etc indicates that first camera in the .scr file will take the parameters defined in record with index 17 in the .cam file, the second camera from record 0, the third from record 2 and so forth.
2	Begin: DLONG point at which camera starts to view the car
3	End: DLONG point at which camera stops to view the car
4	Camera type: Determines whether the camera is a panning or stationary camera. This parameter can assume to values: 6 : indicates a panning camera 7 : indicate a stationary camera

Format for .scr files with two camera sets (TV1 and TV2):

Double Word	MEANING
1	Camera type (6 or 7)
2	Camera Position Index in the .cam file.
3	Begin DLONG

4	End DLONG

Note:

In the original tracks packed with the game the road tracks have only TV1 and the oval ones have TV1 and TV2. However, this is not a limitation but a matter of choice. You can have TV1 and TV2 for a road track and only TV1 for a oval if you wish.

However, there seems to be a limitation when working with TV1 only and that is that the number of TV2 should be still specified and be set to value 6. This can be observed in all original road tracks. For these extra cameras in TV2 you can set all 4 parameters to 0 in the .scr file.

Note:

In the original tracks packed with the game stationary cameras are mostly common on oval tracks than on road tracks. However, you can place stationary cameras on road tracks.

Note:

In some tracks the cameras are indexed in strange order like 17, 15, 0, 2, 4, 13, 14. This was probably a trick to confuse the community track editors and in scratch build tracks normal order of 0 1, 2, 3, 4, etc are found.

Note:

Cameras in the .cam file are indexed starting from 0.

Note:

Sometimes the .cam file (See next chapter) contains more camera records then the number of cameras in the .scr file. For instance 16 cameras in the .scr and 18 in the .cam file. In this case not all positions in the .cam file are addressed by cameras from the .scr file.

The following figure shows an example of an simple .scr file and its relations to the .cam file. As you can observe cameras 1 and 6 from the .scr file are addressing the same record individual in the .cam file and therefore they will use the same parameters like the x,y,z coordinates. However, they will view different sectors of the track since they cover a different range of the .trk surface. Also, record individuals 2 , and 4 of the part-1 of the .cam file are not used in this example.
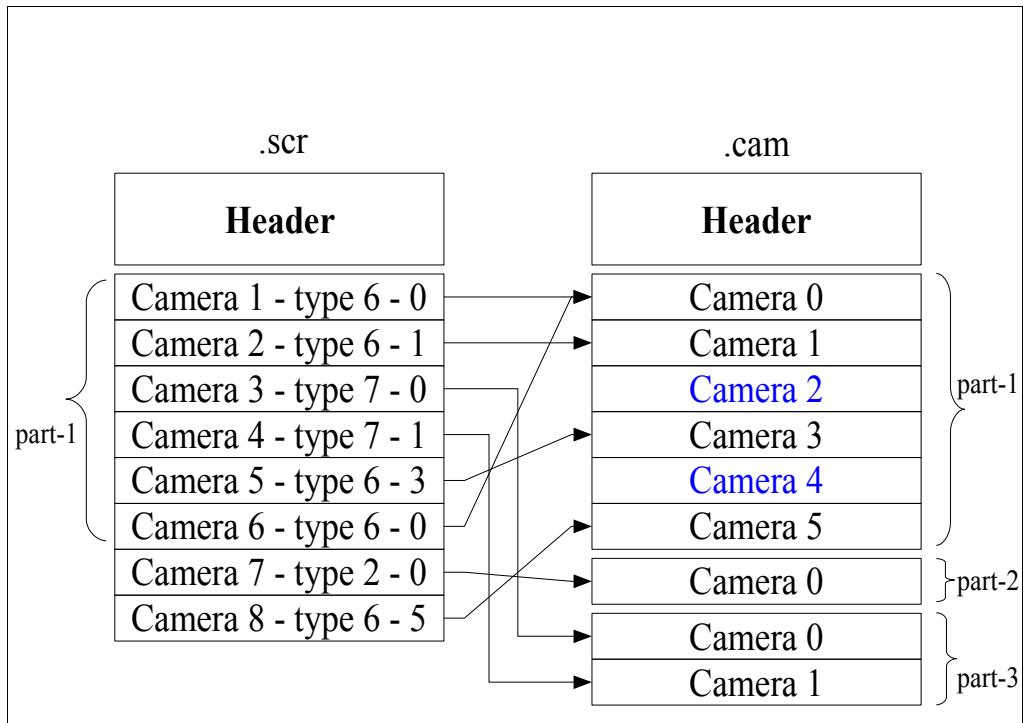
Example:

The following example is a text representation of a decompiled .scr file containing two Camera Sets (TV1 and TV2) and with eight cameras each. See also the example for the correspondent .cam file in next chapter.

```
Header

Camera's:                 2
Number of Cameras in TV 1:  8
Number of Cameras in TV 2:  8


Camera 1

Type:   6
Index:  17
Begin:  62249280
End:    4424180


Camera 2

Type:   6
Index:  15
Begin:  4424180
End:    11725004
```

```
Camera 10

Type:    6
Index:   9
Begin:   6325268
End:     12323316

Camera 11

Type:    6
Index:   10
Begin:   12323316
End:     23995380

Camera 12

Type:    6
Index:   11
Begin:   23995380
End:     46967104

Camera 13

Type:    7
Index:   0
Begin:   46967104
End:     50693824

Camera 14

Type:    7
Index:   5
Begin:   50693824
End:     53476340

Camera 15

Type:    6
Index:   13
Begin:   53476340
End:     59761312

Camera 16

Type:    6
Index:   14
Begin:   59761312
End:     71101812
```

```
Camera 3

Type:    6
Index:   2
Begin:   11725004
End:     18905972

Camera 4

Type:    6
Index:   3
Begin:   18905972
End:     24621792

Camera 5

Type:    6
Index:   4
Begin:   24621792
End:     47666700

Camera 6

Type:    6
Index:   16
Begin:   47666700
End:     57823456

Camera 7

Type:    7
Index:   1
Begin:   57823456
End:     60545280

Camera 8

Type:    7
Index:   4
Begin:   60545280
End:     62249280

Camera 9

Type:    6
Index:   8
Begin:   71101812
End:     6325268
```

We can see from the example above that the cameras are addressing their respective counterpart records in the .cam file in the following order:

1. A sequence of type 6 cameras starting from camera #1 to #6 addressing records 17, 15, 2, 3, 4, 16 of part-1 of the .cam file, respectively.

2. A sequence of type 7 cameras starting from camera #7 to #8 addressing records 1 and 4 of part-3 of the .cam file, respectively.

3. Then again cameras of type 6 starting from camera #9 to #12 addressing records 8, 9, 10, 11 of part-1 of the .cam file, respectively.

4. They are followed by type 7 cameras #13 and #14 addressing records 0 and 5 of part-3 of the .cam file, respectively.

5. Finally two type 6 cameras #15 and #16 closes TV2 set addressing records 13 and 14 of part-1 of the .cam file, respectively.

As we can see the .scr file of the example above is not addressing all records of the .cam file. You should keep this in mind when editing existing camera files but you may want to produce cleaner ones for your scratch built files.

7.9 The Camera Definition File (.cam)

Definition:

The camera definition file (.cam) contains the parameters for all cameras specified in the camera set files (.scr). The parameter include the x,y,z position of the camera, hight, zoom parameters. This file defines the actual collection of cameras available in the virtual track to be selected by the "TV director" i.e. the .scr file.

Format: Binary.

Tools: Cam Editor by Chas Bornermann.

File location:

The .cam file shall be placed in the track.dat or as a standalone file in the folder of the track which it belongs to.

Naming:

The Camera Definition file is named as follows:

<name of the track>.cam

Example:

```
portland.cam
```

File Structure:

The .scr file is written in binary code and consists of the following sections:

- Panning Cameras Record - 1 (aka part 1) – contain the parameters for panning cameras (type 6).
- Panning Cameras Record- 2 (aka part 2) – contain some parameters for panning cameras (type 2)
- Stationary Cameras Record (aka part 3) – contain the parameters for stationary cameras (type 7)

The File size depends on the number of cameras in the camera sets.

Part 1:

This part contains a header and the records of type 6 cameras addressed from the .scr file for cameras of such type.

Header:

Double Word	MEANING
1	Number of Type 6 cameras (panning type 6)

Camera type 6 record:

Each record contain a set of parameters for a camera as shown in the next table.

Double Word	MEANING
1	DLONG value (.trk value), usually ½ way the *begin* and *end* values in the .scr file.
2	X coordinate of the camera in relation to the track.3do.
3	Y coordinate of the camera in relation to the track.3do.
4	Z coordinate of the camera in relation to the track.3do.
5	Usually same value contained in the *begin* parameter for the camera as defined in the .scr file. May indicate the DLONG point the zoom in will start to apply.
6	Zoom In Factor : Zoom control for cars approaching camera. Higher the number the less zoom.(wider shot)
7	Zoom Out Factor: Zoom control for cars moving away from the camera. Higher the number the less zoom you'll have.(wider shot)
8	Usually the same value contained in the *end* parameter for the camera as defined in the .scr file. May indicate the DLONG point the zoom out will start to apply.
9	Zoom Speed: Zoom in/out speed. (end zoom). High positive numbers will produce fast zoom pull back.

Part 2:

I am not sure of the purpose of the cameras in this part of the camera file. They seems related to panning cameras of type 2.

Header:

Double Word	MEANING
1	Number of Type 2 cameras (panning type 2)

Camera type 6 record:

The parameters in each record of this part seems to be the same as the ones for a type 6 cameras defined in part 1 (see table above).

Part 3:

This part contains the records of stationary cameras (type 7) addressed from the .scr file for cameras of such type. The Information on this part has been based on tutorials by Tjerk de Heer (www.cartracinghq.com), Bob Seaman and Turtle of TWI (www.simcyberworld.com). Since I am not too familiar with stationary cameras I could not yet offer may own words on the description of the parameters of stationary cameras.

Header:

Double Word	MEANING
1	Number of Type 7 cameras (stationary)

Camera type 7 record:

Double Word	MEANING
1	Unknown.
2	Controls forward movement. a. In order to regain direction, zero out value 5. b. The lower the number, the more forward it moves.
3	Rotates actual camera. a. The lower the number, the more right it turns. b. Try rotating the camera in the desired direction, then use Value2 to walk it forward.
4	Z coordinate of the camera in relation to the track.3do.
5	Rotates Camera Head. a. Rotation will start to show change at about 10 million. b. The higher the number, the more left it turns.
6	Has camera look up or downward from its tripod. a.100million mark gets results best. b.The lower the number, the lower it looks.
7	Unknown.
8	Wide angle zoom. a. Zooms view way back in negative numbers.
9	Unknown.
10	Unknown.
11	Unknown.
12	Unknown.

Note:

Cameras in the .cam file are indexed starting from 0 by the game but starting from 1 by some tools like the CamEdit.

Example:

The following example is a text representation of a .cam file corresponding to the .scr file example from the previous chapter. As you can see this .scr file has more camera positions than its counterpart .scr file. The extra camera positions are simply not addressed by the .scr file and may be left there by mistake or to confuse track editors. For scratch built camera files the number of records in part 1 of the .cam file are usually the same as the total number of cameras in the .scr file.

```
Part 1:
Camera Positions: 18

Camera 0

Value:  16462000
Value:  -2049686
Value:  9505477
Value:  712378
Value:  61560000
Value:  220000
Value:  131179
Value:  6496000
Value:  225955

Camera 1

Value:  9262080
Value:  -11225414
Value:  9201150
Value:  303500
Value:  4424180
Value:  239042
Value:  195179
Value:  13477004
Value:  142955

Camera 2

Value:  14153728
Value:  -12404362
Value:  4499425
Value:  70000
Value:  11725004
Value:  157042
Value:  203179
Value:  18905972
Value:  168955
```

```
Camera 3

Value:   35396000
Value:  -10169243
Value:  -2716389
Value:   195000
Value:   17992000
Value:   286955
Value:   70955
Value:   28316000
Value:   260955


Camera 4

Value:   611000
Value:   552769
Value:  -4109854
Value:   198500
Value:   22344000
Value:   203042
Value:   213179
Value:   51180000
Value:   173955


Camera 5

Value:   15500000
Value:   11777729
Value:  -4074299
Value:   174000
Value:   41896000
Value:   221042
Value:   157179
Value:   53344000
Value:   124955


Camera 6

Value:   25065000
Value:   16326908
Value:   926287
Value:   190000
Value:   43336000
Value:   151042
Value:   993179
Value:   58888000
Value:   142955
```

```
Camera 7

Value:  34500000
Value:  16788800
Value:  6805203
Value:  230000
Value:  44004000
Value:  158955
Value:  6000
Value:  62220000
Value:  272955

Camera 8

Value:  75425216
Value:  -2049686
Value:  9505477
Value:  229378
Value:  63016000
Value:  138000
Value:  198000
Value:  9188000
Value:  150000

Camera 9

Value:  7470848
Value:  -10831422
Value:  8141488
Value:  458217
Value:  4993268
Value:  216000
Value:  214000
Value:  13444000
Value:  150000

Camera 10

Value:  12596480
Value:  -12724463
Value:  -685682
Value:  104885
Value:  12107316
Value:  142000
Value:  190000
Value:  25268000
Value:  150000
```

```
Camera 11

Value:  24850688
Value:  2501211
Value:  -3308310
Value:  228153
Value:  23179380
Value:  188000
Value:  150000
Value:  48831916
Value:  150000

Camera 12

Value:  50189824
Value:  16969999
Value:  5345720
Value:  133228
Value:  49529824
Value:  152000
Value:  232000
Value:  62561824
Value:  150000

Camera 13

Value:  61476608
Value:  16254193
Value:  5770474
Value:  147637
Value:  52212608
Value:  144000
Value:  206000
Value:  68340608
Value:  150000

Camera 14

Value:  60973312
Value:  13492231
Value:  9923696
Value:  101630
Value:  58657312
Value:  150000
Value:  198000
Value:  73009312
Value:  150000
```

```
Camera 3

Value:  0
Value:  15802410
Value:  7377051
Value:  60000
Value:  1440641427
Value:  0
Value:  0
Value:  835132480
Value:  0
Value:  0
Value:  0
Value:  0

Camera 4

Value:  0
Value:  16301365
Value:  7698873
Value:  107000
Value:  1762763955
Value:  -214748352
Value:  0
Value:  524940416
Value:  0
Value:  0
Value:  0
Value:  0

Camera 5

Value:  0
Value:  16347583
Value:  -1460349
Value:  106552
Value:  967758626
Value:  -143165568
Value:  0
Value:  536870880
Value:  0
Value:  0
Value:  0
Value:  0
```

```
Part 3:
Camera Positions:  6

Camera 0

Value:  0
Value:  16309240
Value:  -1541073
Value:  108702
Value:  -1629990192
Value:  -71582784
Value:  59652320
Value:  238609280
Value:  0
Value:  0
Value:  0
Value:  0

Camera 1

Value:  0
Value:  16007324
Value:  8138885
Value:  108500
Value:  -883657089
Value:  -238609280
Value:  59652320
Value:  548801344
Value:  0
Value:  0
Value:  0
Value:  0

Camera 2

Value:  0
Value:  15802410
Value:  7377051
Value:  60000
Value:  1440641427
Value:  0
Value:  0
Value:  835132480
Value:  0
Value:  0
Value:  0
Value:  0

Value:  17000000
```

7.10 The track.3do file (.3do)

Definition:

The camera .3do file is the file containing the geometry, list of Track Side Objects (TSOs), list of Track Side Details (TSD) and list of textured used by a track.

Format: Binary.

Tools: 3do2Def and Full Edit by Marcelo Bassino, 3doEdit by Dave Noonan and 3d23do by papyrus.

File location:

The track.3do file shall be placed in the track.dat or as a standalone file in the folder of the track which it belongs to.

Naming:

The Camera Definition file is named as follows:

<name of the track>.3do

Example:

```
portland.3do
```

File Structure:

...

Example:

...

Chapter 8 Car Set Files

This chapter presents descriptions of the ICR2 car set files .

8.1 Overview

-

8.2 The Car Set Files (.dat)

Definition:

All the car set files with exception of the descript.txt, the drivers.txt and the drivers2.txt are placed in a papyrus .dat file.

Format: Binary.

File location:

The .dat file shall be placed in the track directory of the track which it belongs to.

Naming:

The track .dat file is named as follows:

<name of the track>.dat

Example:

```
portland.dat
```

File structure:

...

Example:

N/A.

Chapter 9 Game Customization

This chapter presents information on how to customize games screens, sounds and pit crew.

9.1 Overview

-

9.2 Screens

-

9.3 Sounds

-

9.4 Pit crew

-

9.5 Cockpit

-

Chapter 10 Track Editing

This chapter presents tutorials on track editing.

10.1 Overview

-

10.2 Building a Track From Scratch

There are 10 basic steps to build a track from scratch:

1. Draw the basic layout
2. Add elevations
3. Add banking
4. Add walls
5. Add Surfaces
6. Include TSOs and TSDs
7. Create track screens
8. Create track.txt and records.txt file
9. Create Camera files
10. Create AI.

10.3 Adding Track Side Objects

If you are creating a track from scratch we are going to use the ope.exe tool available in the N3 sandbox. You can run it in MS-DOS or using an emulator like DOSbox or DOSemu under Windows or under Linux. I have obtained faster emulation in DOSemu under Linux, however, ope takes more time to produce the .3dn file than on real DOS. This is just a side effect of the emulation and you may think it is hanging, but be patience and allow time to the tool complete the file. You can check the progress at you Linux file manager and check as size of the file is being increased by the tool. On Win98/Me/XP you may have too also use an DOS emulator or a boot disk with DOS. I run ope in WinMe using DOSbox 0.72, however it runs on low frame rate than on real DOS.

Preparation:

You will need the following files:

track_name.trk

track_name.3d

all mip files used by your track

all tso_name*.3do used by your track and their respective .mip files

<todo>

If you want to add object to existing track.3do there is another method than rebuilding your track.3do with ope. It consistis of decompiling the .3do file into a txt file and add the the tso.3do manually. This was the method used before the N3 sandbox was made available to the community. However, this method is much far complicated and time consuming than the first. Besides, you will have to recalculate the TSOs order manually and that may lead to an faulty track.3do or to your objects not appearing at all on the game. Therefore, I will not explore this method on this book.

10.4 Removing Track Side Objects
-

10.5 Creating or Improving the AI
 -

10.6 Converting Tracks from GPL
-

10.7 Converting Tracks from N3
-

10.8 Converting Tracks from GP3
-

Chapter 11 Car Set Editing

This chapter presents tutorials on car set editing.

11.1 Overview

-

11.2 General Car Set Information

-

11.3 Car Set Painting

-

11.4 Creating Car Sets From Scratch

-

Chapter 12 **How-to-s**

12.1 How to take a Screen Shot

<u>DOS Version:</u> Press **Shift** + **Prt_Scr**. A .pcx file will be saved in the main sim directory with the name ICRxx.pcx, where xx is a sequence number starting with 01. The next will be save as ICR02.pcx and so forth.

Illustration 8: ICR01.pcx

Warning:

Every time you re-start the game the screen shoot sequence will restart from ICR01.pcx. So it is a good idea to rename or move your screen shoots every time you quit the sim.

Warning:

This feature may only work properly in some computers if you uncheck the Use Direct Draw option in the game Advanced Graphic Options (Options->Graphics->Advanced).

<u>Windows version (Windy):</u> press **Prt_Scr** to save screen shoots in windy. Differently from the DOS version this will not save a ICRxx.pcx file, but will copy the screen to the windows clipboard. You will have to paste the screen in your favourite picture editor.

12.2 How to add more chassis, engines and tires types

...<to do>

12.3 How to change the colour of the cockpit

The cockpit colour is not taken from the car livery texture .mip file, but taken from the indy95.3do file. Therefore to change the cockpit colour you need to edit that file or replace it with another which already have the desired colour.

12.4 How to change the dash board

The dash board file is packed inside the ROL.dat file (located in CART/ROL).

If you wish to change your dash board you have to unpack the dash.stp and hdash.stp from the Rol.dat and convert them to .bmp files using the RolEdit program by Klaus Hörbrand (see Appendix A).

Chapter 13 Glossary

13.1 Abbreviations

º C	Celcius
DLAT	Distance Latitude
DLONG	Distance Longitude
º F	Fahrenheit
MPH	Miles Per Hour
RPM	Revolutions Per Minute
Windy	Windows Version of IndyCar II

13.2 Terminology

13.2.1 DLAT

DLAT is a value present in several ICR2 files that represents the track Latitude in respect to the track's surface centre line as defined in the .trk file (i.e. this is not a latitude coordinate in respect to the 3d environment, but to the .trk file). It refers to the distance of an object from the track's centre line either to the left or to the right of it. DLAT values to the left of the track's centre line are negative and DLAT values to the right of the track's centre line are positive.

13.2.2 DLONG

DLONG is a value present in several ICR2 files that represents the track Longitude in respect to the track's Start/Finish line as defined in the .trk file (i.e. this is not a longitude coordinate in respect to the 3d environment, but to the .trk file). It refers to the distance of an object from the track S/F line. DLONG values are always positive and start from 0 at the S/F line. The maximum DLONG value will also match with the S/F point and when a car crosses the S/F line this value is reset to 0.

Appendix A **Tools**

The following table presents a list of all known tools created by the community for ICR2, N3 and GPL.

Tool	Purpose	Author	Link
3do2def	Decompilesa .3do file into .txt file	Marcelo Bassino	www.simcyberworld.com
3DOed	View .3do files	Dave Noonan	?
Bank Editor	Modifies the baking of a track.	Chas Bornermann	www.simcyberworld.com
Calendar Editor	A editor for calendar files	Juergen Hiller	http://www.thenorwaypits.com/1999_04/owheel/icr2/filez/calman32.zip
Camera Editor	De/Compiles .scr and .cam files into ASCII text file.	Chas Bornermann	www.simcyberworld.com
dooDat	View, de/compile and edit ICR2/N2/3 and GPL .dat files	Tim Medcalf	?
fixope	Fix the order of objects manually removed from an ope.txt file.	Ton Fastwalker	http://www.cartracinghq.com/
fulledit	Resize a track	Marcelo Bassino	www.simcyberworld.com
gpl2icr2	Converts a GPL .trk file into a ICR2 .trk file.	Ton Fastwalker	http://www.cartracinghq.com/
horizons	Include or updated a horizon in a track	Dave Noonan	?
icr2mgr	Carset Manager, Set Game options, Pit menager, replace and extract .nip files from a track	CowtownBob	?

Tool	Purpose	Author	Link
ins2ope	Convert inserts.txt file generated by 3doedit into ope.txt.	Ton Fastwalker	http://www.cartracinghq.com/
Lap Analyzer	Analyzes .lp files	Zdenek Seidl	www.simcyberworld.com
Lap Edit 4.5	Edit .lp files	Robert Szikszo	www.simcyberworld.com
lp2txt	Decompiles an icr2/n3 .lp file into a .txt file.	Ton Fastwalker	http://www.cartracinghq.com/
lpconv	Converts gpl .lp files into icr2/n3 .lp files	Ton Fastwalker	http://www.cartracinghq.com/
lpman	Edit lp files	Juergen Hiller	?
MtrTrkLen	Shows the track length of a .trk file	?	?
N2toICR2	Converts a N2 track to ICR2.	Dave Noonan	?
N3Def	De/compiles .3do, .trk and .lp files	Chas Bornermann	www.simcyberworld.com
retsope	Reads an ope.txt file and write a newopet2.txt file with specified objects removed.	Ton Fastwalker	http://www.cartracinghq.com/
roledit	Extracts .bmp of the ROL filesand converts .stp files	Klaus Hörbrand	?
RpyToLp	Converts a .rpy file into a .lp file	Nigel Pattinson	?
trk2txt	Decompiles a .trk file into a .txt file	Marcelo Bassino	www.simcyberworld.com
txt2ope	Compiles a .txt file which has been decompiled by lp2txt into a icr2/n3 .lp file. Compatible with txt files generated by trafo20.	Ton Fastwalker	http://www.cartracinghq.com/
txt2trk	Compiles a .txt file created by the trk2txt into a .trk file	Marcelo Bassino	www.simcyberworld.com

Tool	Purpose	Author	Link
VDMS launcher	Sound support for ICR2 in Windows XP using VDMS..	WoofGM	http://www.cartracinghq.com/forum/showthread.php?tid=37
WinMip2	Pack/Unpack .dat files and converts .mip files into .bmp and vice versa.	Klaus Hörbrand	?

Appendix B References and Links

The following table presents a list of ICR2 related websites that were still active by the time of this book was written.

Web Site	URL	Contents
Cart Racing Head Quarters	http://www.cartracinghq.com/	Tracks, car sets, tools, track editing tutorials, records, off-line racing and much more. The biggest and most important icr2 related website.
ICR2 World Records	http://www.simcyberworld.com/icr2/records.htm	ICR2 World Records
Pontiacfan46	http://www.pontiacfan46.150m.com/	Tracks for ICR2 and N3.
Scuderia Fastwalker	http://uk.geocities.com/scuderiafastwalker/index.html	Some scratch built tracks for ICR2 and N3.
Sim CyberWorld	www.simcyberworld.com	Tools and tutorials can be found at the BB&B session.
The Track Shoppe	http://opnspdwy.cmoo.com/~dt/mistycreek/indexb.htm	Tracks for ICR2 and N3.

Appendix C **Troubleshooting**

The following table presents a list of ICR2 most frequent problems.

Problem	Possible Solution
Can't save game file error is displayed after trying to save a race or championship progress.	This error sometimes occur (Windy only) when trying to save a race or championship before starting the race session. The saved file may be corrupted and crash the game and the OS if you try to load it again. Be sure to save your championship progress after every race with a different name so you don't loose your entire season. I suggest you save you race or championship after every qualifying session and after finish a championship race just after you have clicked on the Next Race button.
Game freezes at start up with a black screen.	The Detroit track is corrupted. Restore the original Detroit track.
Game is missing the intro move and music.	The Detroit track is missing. Restore the original Detroit track.
I cannot take screen shoots in Windy with the Print Screen key.	Disable the *Use Direct Draw* option. See the How-to section to see how Disable or enable the *Use Direct Draw* on.
No track directories were found error is displayed at game start up and the game will terminate.	This can happen in due to some reasons: ● There are more than 32 tracks placed in the TRACKS folder. ICR2 only supports 32 tracks, remove some tracks from the TRACKS folder. ● One of the track files is missing or corrupted. Check for corrupted tracks in the TRACKS folder.
Some cars from the back of the field are overtaking during yellow flags.	This is a known bug in the DOS 1.0 version of the game. This is solved on DOS version 1.0.2 or and Windy version 1.0.1.

Problem	Possible Solution
Some tracks shows some incorrect colours or the dash board shows incorrect colours in some tracks.	This is most likely due to the palette used by some tracks and sometimes occurs in Windy. Disabling the Use Direct-x Option may help.
The car becomes difficult to handle after several laps.	This is a known bug in the DOS 1.0 version of the game. This is solved on DOS version 1.0.2 or and Windy version 1.0.1.
The car definitions could not be loaded error is displayed at game start up and the game will terminate.	This can happen in due to some reasons: ● The last selected car set file is corrupted or is missing from the CARS directory.
The car information could not be initialized error is displayed at game start up and the game will terminate.	This can happen in due to some reasons: ● The last selected car set file is corrupted or is missing from the CARS directory. ● There are more than the supported number of car set files in the CARS directory. Remove some car set files from the CARS directory except the last selected car set file.
The control settings could not be loaded Using defaults error is displayed at game start up and the game will terminate.	This can happen in due to some reasons: ● The last selected car set file is corrupted or is missing from the CARS directory.

Problem	Possible Solution
The game crashes out of the blue during a race.	This can happen in due to some reasons: • The tracks has no AI and can only be played in *Pre-season Testing* mode. Playing it in other modes will cause the game to crash. • A scratch build track has some gaps between to sessions or to sessions to close on another. • After running several race sessions (qualify, warm up, races) the games usually crashes. This may probably be due to some code not clearing variables properly. Usually closing the game and restarting it again before starting the next race solves the problem. Save your progress regularly! • Sometimes Windy crashes when running some scratch built tracks if the desktop is configured to run on 256 or 16 bit colours. Change it to 8 bit (256 colours) or 16 bit colour mode to try solve the problem. The correct choice depend on the selected track and it is a matter of trial and error. This may have something to do with the texture files used on the track.
This garage setting is for a unknown track. Are sure you want to load it?	This error message appears when trying to load a garage setting file (.stg) from any other track than the current selected track.
Unable to create settings file error is displayed when trying to load a Garage Setting file (.stg.)	The default.st1 and/or the .stg files are probably marked as 'read only'. Remove the 'read only' marking from the .st1 and .stg.
Windy has no sound when watching replay files.	Disable *Direct Sound*. Go to Menu-> Options->Sound and uncheck the Direct Sound box.
Windy runs on a small window on the centre of a black screen.	The game maximum resolution is 640x480 and this problem will occur whenever the windows resolution is set to a higher screen resolution than that (e.g. 800X600) and the *Use Direct Draw* option is turned on. To solve this problem you can either configure you Windows desktop to run on 640x480 or disable the *Use Direct Draw* option. See the How-to section to see how Disable or enable the *Use Direct Draw* on.

Appendix D Key List

The following table presents a list of keys used in ICR2.

Key	Function
F1	Lap Information
F2	Standings
F3	Fuel Information
F4	Tires Temperature
F5	Tire Wear
F7	Wings Angle
F8	Stagger
F9	Pit Strategy
F10	Switch camera view during game play
C	Change camera view during replay
K	Decrease Turbo Boost
L	Increase Turbo Boost
P	Pause
V	Change viewed car during replay
+	Stiffen front anti-roll
-	Soften front anti-roll
[	Stiffen rear anti-roll
]	Soften rear anti-roll
.	move brake bias forward
;	move brake bias rearward
SPACE BAR	Play/Pause Replay
ALT+H	Autoshift (on/off)
ALT+B	Autobrake (on/off)
ALT+W	Windscreen (with/without)
SHIFT+R	Restart session (back in pits)